

WHAT IS CLAIMED IS:

1. An optical coupling lens system, comprising:
a first lens having a first curved surface; and
5 a second lens having a second curved surface,
wherein the first and second lenses are bonded together with the first and second
curved surfaces opposite to each other.

2. The optical coupling lens system according to claim 1, wherein the first and
10 second lenses each have a flat rear surface and the first and second curved surface are on
respective front surfaces.

3. The optical coupling lens system according to claim 2, wherein the first and
second curved front surfaces each include at least one groove and a flat bonding surface
15 surrounding the groove, wherein the groove is formed with a lens surface projected from a
bottom surface of the groove.

4. An optical coupling lens system according to claim 3, wherein the flat bonding
surfaces of the first and second lenses are bonded with each other.

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5. An optical coupling lens system according to claim 1, wherein the first and
second lenses have an anti-reflection coating on their respective rear and front surfaces.

6. An optical coupling lens system according to claim 1, wherein the first and second lenses are made of a semiconductor material.

5 7. The optical coupling lens system according to claim 6, wherein the semiconductor material is selected from the group consisting of Si, InP, or GaAs.

8. A method for manufacturing an optical coupling lens system, comprising the steps of:

10 (a) forming a mask on a front surface of a substrate, wherein the mask has at least one empty space and the spaces are apart from each other;

 (b) forming a photosensitive layer in a space of the mask;

 (c) heating the photosensitive layer to form a curved surface;

 (d) etching the photosensitive layer to form the front surface of the substrate
15 located under the photosensitive layer; and

 (f) bonding two substrates formed by the previous steps so that the curved surfaces of the substrates are opposite to each other.

9. The method according to claim 7, wherein the etching step includes forming the
20 front surface in a wave form.

10. The method according to claim 7, further comprising a step of providing an anti-reflection coating to both opposite surfaces of each substrate, prior to step f.

11. The method according to claim 7, wherein prior to step f, a front surface of any
5 one of the substrates is provided with an adhesive material.

12. The method according to claim 7, further comprising the step of cutting the bonded substrates into one or more units of a lens system.